

Remarks/Arguments:

STATUS OF CLAIMS

In the current amendment, claims 1, 14, 28, 40, 46, 48, 51, 70, and 98 have been amended; claims 2, 5, 13, 45, 47, 50, and 99 have been canceled; and new claims 121-126 has been added. Claims 1, 3, 4, 6-12, 14-28, 40-44, 46, 70, 98, and 121-126 are currently pending in the application.

REMARKS/ARGUMENTS

In the Office Action dated February 8, 2007, the Examiner:

rejected claims 7-8 and 40-70 under 35 U.S.C. §112, second paragraph, as being indefinite for omitting essential steps;

rejected claims 1-28 under 35 U.S.C. §101 as being directed to non-statutory subject matter;

rejected claims 1-28, 40-70, and 98-99 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,463,155 (hereinafter referred to as "Akiyama"); and

rejected claims 3-4, 9, 53-54, and 58-59 under 35 U.S.C. §103(a) as being unpatentable over Akiyama in view of U.S. Patent No. 5,530,939 ("Mansfield").

1. General Response to Rejections Under 35 U.S.C. §112 and §101.

The Examiner has rejected a number of claims under 35 U.S.C. §112, as being indefinite for omitting essential steps, and under 35 U.S.C. §101 as being directed to non-statutory subject matter. Certainly, it is the Examiner's duty to raise such rejections whenever appropriate. However, it is unusual that these concerns are being raised for the first time in the fourth substantive Office Action in the case. For example, prior to the current Office Action, claims 7 and 8, which have never been amended, were rejected on substantive grounds three times without the Examiner ever questioning their meaning. The Applicant respectfully requests that the Examiner take the time to carefully review the claims to identify any remaining §112 and §101 issues so that, at this late stage, further examination and any subsequent appeal can focus on the issues of novelty and non-obviousness.

2. Response to Rejections of Claims 40-70 under 35 U.S.C. §112.

The Examiner has rejected claims 40-70 under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential steps. More specifically, the Examiner has asserted that:

"based on the language of the preamble" of claims 40 and 70, the essential step of
"obtaining/retrieving the encrypted data" is missing;

in claims 47, 54, 67, and 69, a "searching" step should be followed by a
retrieving/obtaining" step; and

"based on the language of the preamble" of claim 68, the essential step of
"obtaining/retrieving the encrypted data" is missing.

The Examiner has cited MPEP §2172.01 as authority for his assertions regarding the omissions of essential steps. However, nowhere in §2172.01 is it stated that the preamble of a claim determines what are or are not essential steps. Instead, it is clearly stated that "the specification" or "other statements of record" determine the elements, steps, or structural relationship necessary to practice the invention. Thus, unless the Examiner cites language in the specification or other statements of record, e.g., statements made in any of the Applicant's responses, indicating that the steps identified by the Examiner are essential, the Applicant respectfully asserts that there is no basis or authority for these rejections.

Furthermore, preambles are generally considered non-limiting. If the preambles of the rejected claims are not limiting then they cannot dictate what are essential steps; alternatively, if the preambles are limiting then the essential steps are already present via the preamble. Either way, there is again no basis for these rejections.

Additionally, the purpose of storing data is to eventually retrieve it; if no retrieval is contemplated, then the data can simply be destroyed. Thus, as storage implies retrieval, the "essential" step of retrieval is inherently present, and, therefore, there is again no basis for these rejections.

Thus, the Applicant respectfully asserts that, for any one or more of these reasons, the rejections of claims 40-70 under 35 U.S.C. §112, second paragraph, should be withdrawn.

The Examiner has also rejected claims 7 and 8 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. As discussed, it is somewhat unusual that these concerns are being raised for the first time in the fourth substantive Office Action in the case. Prior to the current Office Action, claims 7 and 8, which have never been amended, were substantively rejected three times without the Examiner ever questioning their meaning. Nevertheless, the Applicant is unaware of any authority stating that such rejections are ever improper based solely on how late they are asserted.

The Applicant believes that the meaning of claims 7 and 8 is clear. "A plurality of encryption key identifications" is separated from "a plurality of encryption keys" by a comma, which is dictionary-defined as a mark of separation within a sentence. Grammatically, it is clear that the data entities are not encrypted by both the encryption keys and the encryption key identifications – furthermore, that interpretation would make no technical sense to one with ordinary skill in the art – but rather that the "computer readable medium" further comprises (1) a plurality of encrypted data entities and (2) a plurality of encryption key identifications. Thus, the Examiner's long-time understanding of the proper meaning is correct.

Thus, the Applicant respectfully asserts that, as the meaning of claims 7 and 8 is both grammatically and technically clear, these rejections should be withdrawn.

3. Response to Rejections of Claims 1-28 under 35 U.S.C. §101.

The Examiner has rejected claims 1-28 under 35 U.S.C. §101 as being directed to non-statutory subject matter. More specifically, the Examiner has asserted that "the database structure, although stored in a computer readable medium, is non-statutory subject matter because it cannot be categorized under either one of a 'process, machine, manufacture, or composition of matter'". The Applicant respectfully asserts that the Examiner is incorrect.

First, it is first noted that independent claim 1 is directed to "[a] computer readable medium containing a database structure". A computer readable medium clearly is an article of manufacture and, therefore, statutory subject matter, regardless of what it contains.

Second, data structures, which are defined as "a physical or logical relationship among data elements, designed to support specific data manipulation functions", are "functional descriptive material" and are nonstatutory subject matter when claimed as descriptive matter *per se*. MPEP §2106.1 (quoting The New IEEE standard dictionary of Electrical and Electronics Terms, 308 (5th ed. 1993)). However, contrary to the Examiner's assertion, "[w]hen functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized". *Id.* (emphasis added).

Thus, for either of these reasons, claims 1-28 are clearly directed to statutory subject matter.

4. Response to Examiner's Rejections of claims 1-28, 40-70, and 98-99 under 35 U.S.C. §102(b).

The Examiner has rejected claims 1-28, 40-70, and 98-99 under 35 U.S.C. §102(b) as being anticipated by Akiyama. The Applicant responds as follows.

(a) State of the Law with Respect to 35 U.S.C. §102(b).

35 U.S.C. §102(b) states, in relevant part, that "[a] person shall be entitled to a patent unless the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States." For rejections based on anticipation, there is no question of obviousness or modification of the reference, rather a single reference must teach each, every, and all aspects of the claimed invention either explicitly or impliedly, and any feature not directly taught must be inherently present. MPEP §§706.02 and 2131 citing *Verdegaal Bros. v. Union Oil Co. Of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as in contained in the...claim." MPEP §§706.02 and 2131 citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Furthermore, a prior art device can perform all of the functions of a claimed apparatus and yet not anticipate the claimed apparatus if the claimed apparatus and the prior art device are structurally distinguishable. MPEP §2114 citing *In re Robertson*, 49 USPQ2d 1949, 1951 (Fed. Cir. 1999). Thus, a rejection under 35 U.S.C. §102(b) is overcome by amending the claims to patentably distinguish over the prior art and/or

persuasively arguing that the claims are patentably distinguishable from the cited prior art reference. MPEP §706.02(b).

(b) **Akiyama Does Not Teach Each, Every, and All Aspects of the Claimed Invention.**

Generally, Akiyama is concerned less with encryption and more with the distribution of content to subscribers in which encryption plays a relatively minor and predictable role. Contrary to the Examiner's assertion, Akiyama does not store encrypted data, but rather only encrypts the data when it is brought out of storage immediately prior to broadcast. This is clear from col. 9, lines 54-64, and FIG. 10 which teach that the contents information is stored in the contents information database 21, the encryption ("channel") key is stored in a separate channel key database 4; and the encryption unit reads out the contents information and channel key and "encrypts the contents information...using the channel key...and then sends it to the information appending unit 23". Thus, Akiyama does not teach either storing encrypted data or storing an encryption key identification together with stored encrypted data.

Furthermore, Akiyama stores the decryption key on the consumer's reception unit, and must, therefore, trust that the reception unit is not compromised. Additionally, the relationship between the channel key and the channel over which the data is broadcast is clear. Importantly, Akiyama provides only one level of encryption.

By contrast, the present invention is concerned primarily with a data protection scheme involving encrypting, storing, and decrypting a data entity. The rejected claims concern various aspects of this scheme. With reference to Appendix A, which is provided to facilitate understanding, encrypting and storing the data entity comprises the steps of encrypting the data entity using a first encryption key having a first encryption key identification; encrypting the first encryption key identification using a second encryption key (a first "system" key) having a second encryption key identification; encrypting the second encryption key identification using a third encryption key (a "master" key); storing the encrypted data entity, the encrypted first encryption key identification, and the encrypted second encryption key identification together, such as in a first database; encrypting the first encryption key using a fourth encryption key (a "second system"

key) having a fourth encryption key identification; encrypting the fourth encryption key identification using the third encryption key; encrypting the second and fourth encryption keys using the third encryption key; storing the unencrypted first encryption key identification, the encrypted fourth encryption key identification, and the encrypted first encryption key together, such as in a second database; storing the unencrypted second encryption key identification and the encrypted second encryption key together, such as in the second database; storing the unencrypted fourth encryption key identification and the encrypted fourth encryption key together, such as in the second database; and securing the third encryption key, such as in a key container.

Decrypting the data entity involves reversing the encryption process and comprises the steps of accessing the third encryption key and using it to decrypt the second encryption key identification and the fourth encryption key identification; identifying the second encryption key using the decrypted second encryption key identification; using the second encryption key to decrypt the first encryption key identification; identifying the first encryption key using the decrypted first encryption key identification; identifying the fourth encryption key using the decrypted fourth encryption key identification; using the fourth key to decrypt the first encryption key; and using the decrypted first encryption key to decrypt the data entity.

It will now be appreciated that, in one embodiment, the present invention provides at least four levels of encryption and at least five levels of total protection.

Thus, the present invention encrypts data prior to storage, unlike Akiyama which stores unencrypted data and encrypts data only prior to broadcast. Furthermore, the present invention avoids insider collusion by encrypting the various encryption key identifications and the various encryption keys, unlike Akiyama in which the channel key can be relatively easily ascertained by examining the reception unit. Even in more relevant prior art, an insider with access to the system can simply look-up the decryption key in an index of such keys; the present invention minimizes this risk. More specifically, an insider cannot identify an encryption key until and unless he or she can decrypt the corresponding encryption key identification, and, even then, cannot use the identified encryption key unless and until he or she can decrypt the encryption key.

Claim 1 has been amended to include the limitation of claim 2, i.e., the encryption key identification being encrypted by a system key having a system key common name and the system key common name being stored in association with the data entity, and furthermore, that the system key common name is encrypted by a master key. As discussed, Akiyama neither teaches nor suggests these features. As such, claim 1 and all claims depending therefrom are distinguished from Akiyama.

Claims 12 and 65 both require that the encrypted data entity and the first encryption key identification be stored on a first database, and the encryption key be stored on a second database. As mentioned, while Akiyama teaches a data entity stored on a first database and an encryption ("channel") key stored on a second database, the data entity is not encrypted prior to storage and, therefore, there is no encryption key identification to store with it. Thus, claim 12, claims 13-15 (which depend from claim 12), and claim 65 are distinguished from Akiyama.

Independent claims 28, 40, 70, and 98 have been amended in the same manner as claim 1. As such, these claims and all claims depending from them are distinguished from Akiyama.

All other claims not specifically addressed are patentably distinguished from Akiyama for the general reasons set forth above.

5. New Claims.

New claims 121-126 have been added and include all of the distinguishing features discussed above, as well as additional features of the protection scheme of the present invention. Support for these new claims is found throughout the specification and in the various rejected claims.

CONCLUSION

The Applicant respectfully asserts that the claims are in condition for allowance, and requests a corresponding Notice of Allowance.

Please call the undersigned with any concerns that can be addressed by telephone.

Please charge any fees due in connection with the filing of this response to Deposit Account No. 50-0354.

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Respectfully Submitted,
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